

REMARKS

These remarks address: (1) the objections to the specification and claims contained in the Examiner's April 25, 2003 office action; and (2) the amendments made by the applicants in this response.

A. SPECIFICATION

Applicants filed a specification for this invention on December 26, 2001 ("original specification"). In response to the Examiner's rejection of the original specification in a July 15, 2002 office action, applicants filed a substitute specification in an amendment and response filed on October 11, 2002. In the December 23, 2002 office action, the Examiner informed that she did not enter the substitute specification into the case as it included new matter. Again, in applicants' March 24, 2003 response to the December 23rd office action, the applicants filed a substitute specification ("March substitute specification"). In an office action dated April 25, 2003, the Examiner informed that she did not enter the March substitute specification in this case, as it allegedly contained new matter.

Applicants have reviewed the Examiner's statements regarding new matter in the substitute specification, as set forth in the April 25th Office Action. Applicants address each of the Examiner's findings regarding new matter and respectfully request, based on applicants' amendments and the discussion below, that the Examiner enter the substitute specification provided with this response ("current substitute specification").

1. **"Tapered at Both Ends"**

The Examiner objects to the statement, contained in the March substitute specification, that the rod (14) is "tapered at both ends." In the April 25th office action, the Examiner states that the original disclosure does not disclose a rod (14) being "tapered at both

ends."

Without conceding that the original disclosure does not disclose a rod (14) being "tapered at both ends", applicants have revised the substitute specification so that the disclosure of the rod is revised from "tapered at both ends" to "tapered internally." Applicants submit that this revision is in accordance with the original specification, which states that:

"The entry to the threaded rod is tapered internally..."

Applicants submit that this revision is supported by the original specification and therefore, should overcome the Examiner's new matter objection.

2. "Preferably" and "Optimally"

The Examiner asserts that the terms "preferably" and "optimally," as used in the March substitute specification were more limiting than the original disclosure, and therefore, constitute new matter.

While applicants do not concede that the terms "preferably" and "optimally" add new matter to the substitute specification, applicants have removed all references as noted by the Examiner in the April 25th office action. On this basis, applicants request that the Examiner's new matter objection in this regard be withdrawn.

3. "Set Screws"

The Examiner states that the original disclosure makes no mention of "set screws." Therefore, the Examiner objects to the mention of "set screws" as set forth in the March substitute specification.

Without conceding that "set screws" are not supported by the original specification, the applicants have removed all references to set screws in the substitute specification. On this basis, applicants request that the Examiner's new matter objection in this

regard be withdrawn.

4. "Removable Grip"

The Examiner states that the original specification makes no mention of a "removable grip." As the term "removable grip" is not specifically disclosed in the specification, applicant presumes, for purposes of the Examiner's comments in the office action, that the Examiner is referring to the tube grip (16) as being removable. Assuming this is the case, applicant respectfully submits that the original specification discloses:

"...tube grip and needle groupings must be removable to allow them to be cleaned and sterilized. On all modern tattoo machines, the tube grip is a removable part."

"The tube vice mechanism allows the tube grip to be secured to the frame with a simple twist, and released with a counter twist."

"This is important because the tube grip with needle groupings is removed often to allow for cleaning and sterilization."

This disclosure in the original specification clearly indicates that the tube grip is a removable part. Further, the original specification clearly discloses that in the tattoo industry, it is standard to have a tattoo apparatus with a removable tube grip. On these bases, applicants respectfully submit that no new matter is provided through the disclosure of a removable tube grip in the substitute specification. Rather, the substitute specification simply clarifies what was previously disclosed in the original specification.

5. No New Matter

Applicants respectfully submit that the substitute specification includes no new matter and discloses subject matter contained in the original specification. However, applicants request that the Examiner contact the applicants' representative if the Examiner has any other objections to the substitute specification provided herein.

Applicants respectfully request that the Examiner enter the substitute specification

in this case.

B. CLAIMS

Claims 13 and 36 are pending in the application after this amendment. In response to the rejection of claims 1-13 and 16-35, claims 1-12 and 14-25 have been canceled, claim 13 has been amended, and claim 36 has been added. Reconsideration of the claims is requested in view of the foregoing amendments and the following remarks.

In the April 25th office action, the Examining Attorney stated that claim 13 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, as set forth in the office action: "In claim 13, line 15, "may be" is vague and indefinite since the scope cannot be determined. Either the ferrule "is" or "is not" compressed."

The applicants have amended claim 13 to overcome the 35 U.S.C. 112 rejection set forth by the Examining Attorney in the Office Action. The applicants have also added new claim 36 which incorporates subject matter from current claim 13. Applicants submit that current claims 13 and 36 are adequately supported by the specification and no new matter has been added through these amendments.

Claims 1-12 and 14-35 have been canceled, and therefore, the applicants submit that the examiner's rejection of these claims is null.

CONCLUSION

Based on the above amendments and remarks, applicants respectfully request reconsideration of claims 13 and 36. Applicants earnestly solicit an early Notice of Allowance.

Application Number 10/025,632
Amendment dated July 24, 2003
Reply to Office Action of April 25, 2003

Please charge Deposit Account No. 13-3571 for any additional fees which may be required.

Respectfully submitted,



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SCREW TIGHT TUBE VICE FRAME

BACKGROUND-FIELD OF THE INVENTION

[0004] This invention pertains relates generally to the field of tattooing and tattoo machines. More particularly, the invention relates to an apparatus for securing, and is intended to improve the method used to secure the tube grip, which houses the needle bar and needle grouping, to the frame of a tattoo machine frame or intradermal injection device. The tube grip houses the needle bar that holds the needle grouping, which moves into and out of the skin in the act of tattooing.

BACKGROUND OF THE INVENTION

[0005] Tattoo machines necessarily break the skin of the subject during the tattooing process, causing a risk of the spread of infectious diseases such as Hepatitis, HIV and AIDS. The standard in the industry therefore is to sterilize the tattoo machine before each use. Because tattoos must be applied in a sterile manner, In order to effectively and efficiently sterilize a tattoo machine, the components of the machine must be easy to remove, sterilize, and reassemble.

[0005.1] Prior art tattoo machines typically have a needle or needle grouping which extends through the tattoo machine frame and is driven by a motor to reciprocate linearly. A ~~the hollow~~ cylinder or tube is attached to the tattoo machine frame and the needle grouping passes through the

tube. A portion of the tube, often having a larger external diameter than the rest of the tube, has a gnarled outer surface. This portion is called a tube grip. The tube grip provides a grippable portion for the tattoo machine operator and also serves to guide the needle grouping and restrain lateral movement of the needle grouping. The tube grip and needle groupings must be removable to allow them to be cleaned and sterilized. On all modern tattoo machines, the tube grip is a removable part.

[0005.2] Existing ~~tube vice~~ tattoo machine technology ~~uses~~ employs several methods to secure the tube grip to the tattoo machine frame ~~which,~~ but many of these methods tend to bend or crimp ~~the cylindrical tube grip.~~ tend to bend or crimp the cylindrical tube grip. The present apparatus available not only tend to damage the tube grip, but are slow to remove and reinstall, and apparatus with multiple small screws are difficult to sterilize.

[0005.3] A more recently developed method of attaching the tube to the frame is a split portion of the frame which partially encircles the tube and is tightened with a wing nut. Tattoo machines are covered with a light plastic bag during operation to avoid contamination or cross-contamination between the operator and subject. Not only are such bags often ripped by the protruding wing nut, but the tattoo machine is rendered less streamline by the frame extension, wing nut and bolt required. The wing nut type vice does not apply pressure evenly to the tube grip, and may result in bending or crimping of the tube grip.

The Screw Tight Tube Vice Frame (shown in FIG. 2) is designed to allow the tube grip to be secured to the frame with a simple twist and released with a counter twist. The Screw Tight Tube Vice Frame secures the tube grip in place just as securely as or more securely than existing technology, but will not bend or crimp the tube grip.

BRIEF SUMMARY OF THE INVENTION

[0006] [0006] It is an object of the ~~Serew Tight Tube Vice Frame~~ present invention is to provide a secure, easy to assemble and disassemble apparatus for attaching the tube grip and the tube housing needles in a tattoo machine to the frame of the tattoo machine in a manner that improves on the methods currently used by tattoo machines, while providing a housing for the tattoo machine components.

[0006.1] It is a further object of the invention to provide a ~~The Sscrew Tight Tube Vvice~~ frame consists of a ~~tube vice~~ comprising a frame, into which holes are drilled and tapped for attaching the frame to other tattoo machine components, and a tube vice mechanism for attaching the tube grip to the frame. This tube vice mechanism allows the tube grip to be secured to the frame with a simple twist, and released with a counter twist, a compression nut, a compressible ferrule and a receiving piece and a tube adapted such that the tube housing at least one needle may be inserted in the receiving piece, the ferrule slipped over the tube, and the nut slipped over the tube and pushed up against the ferrule, then and screwed onto the receiving piece such that the ferrule is compressed and grips and retains the tube without bending or crimping it.

[0006.2] It is yet a further object of the present invention to provide a tube vice frame that allows rapid and easy removal of the ~~This is important because the tube grip, tube and with needle groupings is removed often to allow for cleaning and sterilization.~~ and that has It is a further object of the present invention to provide a tattoo machine with a streamlined profile that is easily

shrouded in plastic or other material without without tube vice frame which may risk of be
retrofitted to existing tattoo machines tearing the shroud.

[0006.3] Another object of the present invention is to provide an apparatus for securing a tube grip to be secured to or ~~removed~~ removed from a tattoo machine frame with a simple twist of a nut.

[0006.4] Another object of the present invention is to provide a method for manufacturing a screw tight tube vice frame that is efficient, inexpensive and creates a streamlined, easy to use vice frame on a tattoo machine which may be retrofitted to an existing tattoo machine.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0007] FIG. 1 shows ~~the~~ is a perspective view of a tattoo machine with ~~the~~ a Screw-screw Tight-tight Tube-tube Vice-vice Frame-frame according to the invention.

[0008] -FIG. 2 shows ~~the~~ components of ~~is~~ an exploded perspective view of the key components of the Screw-screw Tight-tight Tube-tube Vice-vice Frame-frame in detail.

-[0008.1] FIG. 3 is a pre-assembly side detail view of a compression nut, ferrule and threaded rod according to the invention.

[0008.2] FIG. 4 is an assembled side detail view of a compression nut, ferrule and threaded rod according to the invention.

DETAILED DESCRIPTION OF THE INVENTION AND PREFERRED EMBODIMENT

[0009] Components Figure 1 depicts the preferred embodiment of the apparatus for attaching a tube 20 and associated components to a frame 40 in a tattoo machine 100 in accordance with the present invention. Tattoo machines 100 are generally comprised of a frame 40, typically made of metal. Standard frames 40 have a lower binding post 52 and an upper binding post 50. There is also typically a coil mounting bracket 44 at the front portion of the frame 40, and a spring saddle 42 at the lower rear portion of the frame 40. At least one electromagnetic coil 60 is mounted on the coil mounting bracket 44. Preferably there are two coils, a front coil 60 and back coil 62. An armature bar 70 is attached to a spring 69 which extends from the spring saddle 42 and is adapted to reciprocate when AC power is applied to the electromagnetic coils 60 and 62 such that the armature bar 70 is alternately attracted and repelled by the coils 60 and 62, as is known in the art.

[0010] ——— [0010] Also as is known in the art, a needle bar 24 is attached to the armature bar 70 and passes through the coil mounting bracket 44 to maintain stability. The needle bar 24 has at least one needle attached to the needle bar tip (not shown). A hollow housing or tube 20 is placed over the needle bar 24 to guide the reciprocating needle bar 24. The present invention relates generally

to an apparatus for securing the tube 20 to the frame 40 of a tattoo machine 100, referred to herein as
The Screw-screw Tight-tight Tube-tube Vice-vice Frame-frame 30.

[0010.1] Still referring to Figure 1, aA consists of a tube vice frame and a tube vice mechanism, which attaches a tube grip of standard industry measurement to the frame. The tube vice mechanism may include a removable hollow threaded rod 22 14 extends from the mounting bracket 44 towards the active end- or front of the tattoo machine 100. The tube 20 is inserted into the hollow rod 22. A ~~house~~ the compression ferrule (not shown) comprising a hollow split ring with bevelled edges is slipped over the tube 20 to abut the inner surface of the hollow rod 22 14. A compression nut 12 with an internal taper is then slipped over the tube 20 to abut and surround the ferrule (not shown) and screw onto the rod 22 thereby securing the tube 20 to the frame 40., or the hollow threaded section that houses the compression ferrule may be cast or machined as part of the frame. The tube vice mechanism also includes a compression nut that is tightened around the compression ferrule to secure the tube grip to the frame, and loosened to release it from the frame. The specifications for the threaded rod and compression ferrule are as follows:

[0011] [0011] A tube grip 16 consisting of a hollow cylinder with a gnarled outer surface, which is a known tattoo machine component, is the slipped over the tube 20- the tube grip 16 may also be an integral component of the tube 26. A tube tip 18 is then inserted in the open end of the tube grip 16. The tube tip 18, tube 20, and tube grip 16 are connected as a unit. At least one set screw 24 26 is screwed through the tube grip 16 and into the tube 20 and tube tip 18, thereby connecting the tube tip 18, tube 20, and tube grip 16 as a unit.

[0011.1] — Referring now to Figure 2, an exploded perspective view of the key components of the screw tight tube vice frame are shown in detail. The tube vice mechanism, which is used to attach a tube grip of standard industry measurement to the frame, is located on the front lower portion of the frame. The frame 40 is shown fully exposed without the additional tattoo machine 100 components. The lower binding post hole 46 and upper binding post hole 48 are shown. In the preferred embodiment the hollow cylinder or rod 14 is removable from the frame 40. The inside surface of the rod 14 is internally tapered.

[0011.2] — The compression ferrule 10 is a split ring or hollow cylinder preferably composed of a malleable material metal such as brass. The ferrule 10 is tapered from each end to a central high point about the mid circumference of the ferrule 10. The ferrule 10 compresses as pressure is applied to the tapered ends such that the internal diameter of the ferrule 10 is reduced and the split or gap gradually reduced. The tapered ends of the ferrule 10 are preferable machined to the same angle as the taper on the interior surface of the rod 14, such that a mirrored mating surface is created between the ferrule 10 and rod 14.

[0011.3] — The ferrule 10 is compressed between the rod 14 and the compression nut 12, which is a nut having interior threads matching those on the exterior surface of the rod 14, and preferably has a gnarled or otherwise textured exterior surface to provide a grip to the operator. The nut 12 also has an internal taper matching or mirroring that of the ferrule 10. The compression nut 12 is rotated in a clockwise direction to compress and lock the ferrule 10 in place.

[0011.4] — The threaded rod 14 is between approximately 1/2" to 5/8" in length and has a approximately 1/2" to 5/8" long, with 1/2 20 threading, with an, the inside diameter of the hollow

centre measures {fraction (either 5/16)}" or {fraction (11/64)}".

[0012] [0012] The compression ferrule 10 is optimally usually measures 1/4" tall in length, with an inside diameter of {fraction (5/16)}" in an uncompressed state. The compression nut 12 must be sized to screw onto the rod 14.

[0013] Manufacturing and Assembly

[0014] [0014] The Screw-screw Tight-tight Tube-tube Vice-vice Frame-frame components may be made manufactured from metal (such as aluminum, brass, steel, or iron) or any other rigid material (such as plastic, fibreglassfiberglass, or lexan). A malleable metal such as brass is used. Holes are drilled in the tube vice frame 40 as follows:- a hole for the upper binding post, a hole for the lower binder post, two holes drilled in the coil mounting bracket to accept the screws 64 that secure the coils 60 and 62 and a drilled and tapped hole for the spring screw 68 that secures the spring 69 to the frame 40.

[0017] two holes drilled on the flat plane coil mounting bracket to accept for the screws 64 that secure the coils 60 and 62 (one hole per coil) and a [0018] drilled and tapped hole for the spring screw 68 that secures the rear spring 69 saddle to the frame 40.)

[0019] The tube vice mechanism, which is used to attach a tube grip of standard industry

~~measurement to the frame, is located on the front lower portion of the frame. It may include a removable hollow threaded rod to house the compression ferrule, or the hollow threaded section that houses the compression ferrule may be cast or machined as part of the frame.~~

down to Spec

[0020] If a removable threaded rod is used to house the compression ferrule, a An internal taper is machined into the lower front entrance of the threaded rod 14, starting at the outside diameter and machining inwards to a recommended depth of which is optimally 1/8". The entry to the threaded rod 14 is tapered internally to approximately the same degree as the compression ferrule 10 to allow the rod 14 to house the ferrule10. The threaded rod 14 is attached to the tube vice frame 30 by machining the coil mounting bracket 44 on the frame 40 as follows:

[0021] [0021] 1. step-drilling a primary hole measuring {fraction (approximately 29/64)}" in diameter is step drilled two-thirds of the way into the front lower section of the coil mounting

bracket 44 frame ; drilling

2. drilling a secondary hole measuring {fraction (approximately 5/16)}" or {fraction (11/64)}" in diameter is drilled through the remaining one-third of the frame coil mounting bracket 44, using the same center point as the previous hole.

[0023] t The primary {fraction (29/64)}" hole is tapped with a 1/2 20 bottoming tap from the entrance of the hole, starting at the bottom front of the coil mounting bracket 44 frame and continuing through to the end of the step - drilling (approximately two-thirds of the way into the coil mounting bracket 44 frame).

[0024][0024] The threaded rod 14 is screwed into the threaded hole (not shown) and protrudes approximately a 1/2" from the front of the frame coil mounting bracket 44.

[0024.1] In a variation to the preferred embodiment, the removable hollow threaded rod 14 may be cast or machined as part of the coil mounting bracket 44 on the frame 40, rather than as a removable component.

[0025] [0025] If the hollow threaded section rod 14 is cast as part of the frame 40, it protrudes approximately a 1/2" from the bottom front of the frame coil mounting bracket 44 (the same length as the threaded rod 14, described above, would protrude once screwed into the frame coil mounting bracket 44). If the frame 40 is cut on a CNC mill, the hollow threaded section rod 14 may also be machined into the frame 40, protruding approximately 1/2" from the bottom of the frame 40. (again, the same length as the threaded rod or cast threaded section would protrude from the frame). The same taper, -machined to a-(recommended depth of 1/8") applies should be used whether a removable threaded rod 14 is used to house the compression ferrule 10 or the threaded rod 14section is cast or machined as part of the frame 40.

[0026] [0026] The compression ferrule 10 is preferably usually made of a flexible or

malleable material (often such as brass). The exterior surface of the brass compression ferrule 10 is tapered on both ends; and with the tapers meeting in the middle of the ferrule 10. A slit is made vertically through half of the ferrule 10 to allow flexibility when it is compressed and

tightened around the tube 20-grip. The compression ferrule 10 is placed into the hollow section of the threaded rod 14 or machined frame component 14.

[0027] [0027] The compression nut 12 is step drilled, drilled, and tapered to the same specifications as the threaded rod 14. It may be machined from any type of metal. The nut 12 ~~is has~~ interior threads adapted to be screwed onto the threaded rod 14 or threaded section 14 of the frame 40 that houses the compression ferrule 10 ~~with by turning the nut 12 in a tightening clockwise motion to secure the tube-grip 20, or unscrewed conversely turning the nut 12 in an anti-clockwise direction loosening motion to release the tube 20-grip.~~

[0028] [0028] Referring now to Figure 3, a pre-assembly side detail view of a compression nut 12, ferrule 10 and threaded rod 14 is shown. The arrows indicate the direction of connection of the nut 12 to the rod 14. The tapered lip of the interior surface of the rod 14 serves to compress the ferrule 10 thereby reducing the interior diameter of the ferrule 10.

[0028.1] Figure 4 shows an assembled side detail view of a compression nut, ferrule and threaded rod. The compressed ferrule abuts the tube 20 with its interior surface, thereby securing the ferrule 10 in place without bending, crimping or other damage to the tube 20. Function

[0028.2] In use, the sterilized, removable components are assembled as follows: the hollow rod 14 is screwed clockwise into the coil mounting bracket 44 on the frame 40, then the needle bar

24 is inserted through the frame 40 and attached to the armature bar 70. The tube 20 then slides over the active or distal end of the needle bar 24 and into the frame 40. The ferrule 10 slides over the tube 20 to seat against the distal end of the rod 14 and is tightened clockwise to compress the ferrule 10 against the tube 20 thereby retaining it in the frame 40. The tube grip 16 slides over the tube 20, and is secured by at least one set screw 26. The tube tip 18 is then inserted inside the distal end of the tube grip 16 and over the needle bar 24, and is secured to the tube grip 16 by at least one set screw 26.

[0029] {0029} When the compression nut 12 is turned clockwise in a tightening motion, the bevels or tapers make contact and slide over each other, creating pressure evenly around the circumference of the taper on the compression ferrule 10 and causing it to compress. The vertical slit in the ferrule 10 provides greater room a gap for compression as the ends of the slit move toward each other, creating a squeezing effect and securing the tube 20 grip to the frame 40 without bending or crimping it.

[0030] {0030} After use of the tattoo machine 100, Turning the compression nut 12 is rotated counter-clockwise in a loosening motion to relieve the pressure on the compression ferrule 10, resulting in the release of the tube 20 grip. The motion is easy to perform and avoids damage to the tube 20 which commonly occurs in prior art tattoo machines 100. The present invention is a streamlined apparatus due to the low profile, inline ferrule 10, rod, 14 and nut 12 arrangement.

Application Number 10/025,632
Amendment dated July 24, 2003
Reply to Office Action of April 25, 2003

[0030.1] The preferred embodiment and variations herein described are not intended to be exhaustive or to limit the scope of the invention to the precise forms disclosed. They are chosen and described to best explain the principles of the invention and its application and practical use to allow others skilled in the art to comprehend its teachings.

[0030.2] As will be apparent to those skilled in the art in the light of the foregoing disclosure, many alterations and modifications are possible in the practice of this invention without departing from the spirit or scope thereof. Accordingly, the scope of the invention is to be construed in accordance with the substance defined by the following claims.

ABSTRACT

An apparatus and a method for manufacturing the apparatus is disclosed for a tattoo machine frame with a screw tight tube vice for attaching a needle housing or tube to the frame of a tattoo machine which facilitates cleaning and sterilization.. The apparatus, or tube vice, comprises a tube which houses On all modern tattoo machines, the tube grip is a removable part that houses the needle bar, which holds the the- a needle needle groupings that which moves into and out of the subject's skin in the act of during tattooing, a hollow cylinder which may be removable or integral to the frame of the tattoo machine, a split ring ferrule and a compression nut. The tube is inserted into the hollow cylinder and the ferrule slides over the tube to abut the interior of the hollow cylinder. Both the The ferrule, nut and the interior of the hollow cylinder have beveled edges that mate. The nut- slides over the tube to screw onto the hollow cylinder thereby compressing the ferrule against the tube without bending or crimping the tube as generally occurs with the prior art. A The tube grip may be attached to the tube. The components of the tattoo machine are thereby rendered easy to remove and reassemble, and needle groupings must be removable to allow for cleaning and sterilization. The tattoo machine is also streamlined and less prone to parts puncturing protective coverings than prior art machines. A method of manufacturing the tube vice is also disclosed. The tube vice can be provided in kit format. This invention is intended to improve the technology currently used by tattoo machines to secure the tube grip to the tattoo machine frame. Existing tube vice technology uses methods of securing the tube grip to the tattoo machine frame that tend to bend or crimp the tube grip. The Screw Tight Tube Vice Frame uses tube vice technology that secures the tube grip in place just as securely as or more securely than existing technology, but will not bend or crimp the tube grip. It includes a frame with holes drilled and tapped for attaching it to other components of a tattoo machine and a tube vice mechanism for attaching the tube grip to the frame. The tube vice mechanism allows the tube grip to be secured to the tattoo machine frame with a simple twist, and released with a counter twist.

Application Number 10/025,632
Amendment dated July 24, 2003
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